



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/599,396	09/27/2006	Ryosuke Meshii	P30769	8147

7055 7590 04/28/2008  
GREENBLUM & BERNSTEIN, P.L.C.  
1950 ROLAND CLARKE PLACE  
RESTON, VA 20191

EXAMINER
----------

HUNG, MING HUNG

ART UNIT	PAPER NUMBER
----------	--------------

2829

NOTIFICATION DATE	DELIVERY MODE
-------------------	---------------

04/28/2008

ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

gbpatent@gbpatent.com  
pto@gbpatent.com

<b>Office Action Summary</b>	<b>Application No.</b>		<b>Applicant(s)</b>	
	10/599,396		MESHII ET AL.	
	<b>Examiner</b>		<b>Art Unit</b>	
	Ming Hung Hung		2829	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 27 September 2006.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 September 2006 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____.                                     |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>12/21/06</u> .  | 6) <input type="checkbox"/> Other: _____.                         |

### **DETAILED ACTION**

1. Preliminary amendments filed on 09/27/06 and 10/19/06 have been entered into record.
2. Claims 1-11 are pending.

### ***Priority***

3. Examiner acknowledged that this application 10/599,396 filed on 09/27/06 claims the benefit of the foreign application JP 2005/007784 filed on 01/14/05.

### ***Drawings***

4. Figures 8-10 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g).
5. "GUTTING" in Fig. 2 should read "CUTTING".

Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 1-2 and 5-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Masakazu (JP Hei 10-090300, Applicant's admitted prior art) in view of Keichi et al (JP Hei 6-340452, Applicant's admitted prior art).

8. As to claims 1-2 and 5-6, Masakazu discloses

**a method for manufacturing a semiconductor physical quantity sensor of electrostatic capacitance type** (page 2, line 21-page 3, line 9 and Fig. 9 of the present application) **in which mutually facing peripheral areas (referred to as bonding areas) of an insulating substrate and a semiconductor substrate are contacted for anodic bonding** (5, Fig. 9 of the present application), **while both substrates have an anodic bonding voltage applied therebetween so as to be integrated by anodic bonding** (11, Fig. 9 of the present application), **with a fixed electrode** (7, Fig. 9 of the present application) **being formed on a bonding face-side surface of the insulating substrate** (2, Fig. 9 of the present application), **and with a movable electrode** (4, Fig. 9 of the present application) **being formed on a bonding face-side surface of the semiconductor substrate** (1, Fig. 9 of the present application), **the method**

**comprising: a first step of forming, before the anodic bonding, an equipotential wiring to short-circuit the fixed electrode to the movable electrode on the bonding face-side surface of the insulating substrate/semiconductor substrate inside the bonding area** (page 2, lines 21-25 and Fig. 9 of the present application), **and to be prevented from being directly sandwiched between the both substrates** (Fig. 9 of the present application; 7(7c) connects to substrate 1 indirectly, therefore, indirect sandwiched between the both substrates); **a second step of performing the anodic bonding** (page 3, lines 1-4) **[claims 1 and 5]**.

However, Masakazu fails to disclose:

**a third step of cutting and removing the equipotential wiring after the anodic bonding [claims 1 and 5];**

**where the third step, the equipotential wiring is cut by laser irradiation allowed to pass through from the insulating substrate [claims 2 and 6].**

Nonetheless, these features are well known in the art and would have been an obvious modification of the method disclosed by Masakazu, as evidenced by Keichi.

Keichi discloses:

**a third step of removing the equipotential wiring after the anodic bonding is cut by laser irradiation** (page 3, lines 19-25 of the present application);

Given the teaching of Keichi, a person having ordinary skills in the art at the time of the invention would have readily recognized the desirability and advantages of modifying the method disclosed by Masakazu by employing the well known or conventional features of laser irradiation, such as evidenced by Keichi, in order to cut

Art Unit: 2829

and remove the equipotential wiring that is within the bonding areas via the glass substrate for the purpose of making the movable electrode movable and detecting a pressure, since the equipotential wiring is under the glass substrate and the glass substrate has the property allowing the laser irradiation to pass through .

9. Claims 3-4, 7-8, and 10-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Masakazu in view of Keichi as applied to claims 1 and 5, and further in view of Katsumi et al (See attached Machine English Translation of JP Hei 9-196700, Applicant's admitted prior art, and Katsumi hereinafter).

10. As to claims 3-4, 7-8, and 10-11, Masakazu in view of Keichi discloses substantial features of the claimed invention (see paragraph above), and further discloses (see Masakazu):

**conductive film layers** (9a and 9b, Fig. 9 of the present application) **are exposed at bottom portions of respective through-holes which are provided in the insulating substrate** (8a and 8b, Fig. 9 of the present application) **for the fixed electrode** (7/7c, Fig. 9 of the present application) **and the movable electrode** (4, Fig. 9 of the present application) **as to cause a current to flow in the equipotential wiring** (70, Fig. 9 of the present application) **[claims 3 and 7]**.

However, Masakazu in view of Keichi fails to disclose:

**where in the third step, "a voltage is applied" between conductive film layers exposed at bottom portions of respective through-holes which are**

**provided in the insulating substrate for the fixed electrode and the movable electrode so as to cause a current to flow in the equipotential wiring, “and the equipotential wiring is cut by heat generated based thereon” [claims 3 and 7];**  
**where in the first step, the equipotential wiring has reduced width at a cutting location thereof [claims 4, 8, and 10-11].**

Nonetheless, these features would have been obvious modification of the method disclosed by Masakazu in view of Keichi, as evidenced by Katsumi.

Katsumi discloses:

**a voltage is applied, and the equipotential wiring is cut by heat generated based thereon ([0078], line 1) [claims 3 and 7];**  
**where in the first step, the equipotential wiring has reduced width at a cutting location thereof ([0043]-[0044, Drawing 9A) [claims 4, 8, and 10-11];**

Given the teaching of Katsumi, a person having ordinary skills in the art at the time of the invention would have readily recognized the desirability and advantages of modifying Masakazu in view of Keichi by employing the well known or conventional features of voltage generated heat, such as disclosed by Katsumi, in order to cut the equipotential wiring in the above structure during the third step in a facilitating manner other than cutting with laser irradiation.

11. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Masakazu in view of Keichi and Katsumi.

Art Unit: 2829

12. As to claim 9, arguments made in paragraphs 8-10 above also apply.

***Conclusion***

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ming Hung Hung whose telephone number is (571) 270-3832. The examiner can normally be reached on Monday through Friday 7:30AM-5:00PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ha Nguyen can be reached on (571) 272-1678. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

\*\*\*

/Ming Hung Hung/  
Examiner, Art Unit 2829  
04/21/08



Application/Control Number: 10/599,396

Page 8

Art Unit: 2829

/Ha T. Nguyen/

Supervisory Patent Examiner, Art Unit 2829